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ABSTRACT

Definitions of environmental education normally include a number of common elements. First is a hard core of ecological content. Second, a recognition of worldwide problems of crisis proportions. Third, a component of conscience, of a value system. Fourth, a commitment to private and public action. The whole is focused on a comprehensive rather than a compartmentalized approach to change in people-land relations, typically with a strong element of wildlife conservation. The environmental education ecosystem today has five principal elements: the mass communication media, government instrumentalities, eco-action organizations, industry and labor, and educational institutions. The evolution of environmental education is traced and the five elements of today's environmental education ecosystem are analyzed. The relationship of wildlife conservation to environmental education is discussed. The roles of both for developing public commitment and action regarding a national program of resource management and environmental responsibility are discussed. (RH)

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for Council on Environmental Quality

National Symposium on Wildlife in America

Washington, D.C., 29 Sep - 1 Oct 1976

ABSTRACT

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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ENVIRONMENTAL EDUCATION AND WILDLIFE CONSERVATION

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Whatever definition of environmental education you employ, all will invariably have certain common denominators. First, there is a hard core of ecological content. Second, a recognition of worldwide problems of crisis proportions. Third, a component of conscience, of a value system. And fourth, a commitment to private and public action. The whole is focused on a comprehensive rather than a compartmentalized approach to change in people-land relations, typically with a strong element of wildlife conservation.

In environmental education, the recognition of the interdependence of wildlife and human welfare is an important ingredient. As the practice of environmental education becomes more pervasive and its impact more effective, the future of both our national wildlife resource and the quality of the American environment may be more assured.

Environmental education has come gradually to flower from many roots--nature study, conservation education, outdoor education, ecology, consumer education, citizenship education, population education, resource management education, philosophy and religion. A basic message of environmental education is interdependence--that everything is connected to everything else. A basic characteristic of environmental education is that diverse men, women, media, methods, and modes are involved. Whatever the total complement of environmental education, wildlife conservation constitutes a key element--a valuable point of entry, a rich source of illustration, a stimulus to

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action, and even an aspect of ultimate rationale. This wildlife legacy has played an important role in the evolution of environmental education.

What you might call the environmental education ecosystem today has five principal elements: the mass communication media, government instrumentalities, eco-action organizations, industry and labor, and educational institutions. What should be their azimuths in environmental education in support of wildlife in the years ahead?

The media can lend to the environment the same continuing coverage in depth they habitually devote to the stock market and sports. The resource management agencies need an expanded research base that will replace seat-of-the-pants hunches with documented options. Environmental activists need less preaching and more politicking, muting their parochial messages and sharpening their tools of leverage. Business and labor must make peace with environmental constraints quite as much as with the rules of economics. Elementary and secondary teachers can stop arguing semantics about process versus content, and they could stop complaining about lack of federal funding and energize home-talent programs. Schools and colleges increasingly can involve all the disciplines in presenting environmental studies as an essential ingredient of basic curricula, and in getting students out of the classrooms to encounter real-life environmental issues. Collectively environmental education can develop an over-all strategy, identify some attainable priority targets and attack selected beachheads one at a time, instead of trying to win the war by knee-jerk massive retaliation. The strategic continental objective is an open marketplace of ideas, with environmental educators of varying persuasions vying for attention, outlining varying options, and contributing to a mass facility with the democratic decision-making process.

In many ways wildlife represents the basic concept of environment, and wildlife conservation represents ecological conscience in action. Such content and commitment, mobilized comprehensively in an attack on problems of crisis proportions, is the essence of environmental education, involving imparting cognitive content about the environment through written, spoken, or pictorial messages, and arranging affective

experiences through environmental encounters. Environmental educators seek to encourage public awareness of environmental problems; public understanding of underlying principles, issues, and options; and a public commitment to individual and collective action, including wildlife conservation. Environmental education is the natural habitat of the newer ecological principles that must come to mark wildlife management for the future.

In our society, enlightened resource management for environmental responsibility depends to a great extent on an aware, informed, understanding, and active public, competent to arrive at solutions in keeping with ecological principles, engineering capabilities, esthetic values, and economic wherewithall, typified by a sanative wildlife policy. The capacity to live without befouling and denuding the environment--this was the Leopold test of whether we are civilized. A compassionate wildlife policy, nurtured through environmental education, can be one of the means of developing a culture that will meet that test.

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for Council on Environmental Quality

National Symposium on Wildlife in America

Washington, D.C., 29 Sep - 1 Oct 1976

FINAL TEXT

ENVIRONMENTAL EDUCATION AND WILDLIFE CONSERVATION

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However you define environmental education, a recognition of the interdependence of wildlife and human welfare is an essential, inevitable ingredient. Most laws passed to protect wildlife "protect humankind's interests more" (Strohm 1974). As the practice of environmental education becomes even more pervasive and its impact more effective, the future of both our national wildlife resource and the quality of the American environment will be more assured. Environmentally responsible citizenship depends on environmental education, and a primary beneficiary is wildlife (Hendee 1976).

While the latest definitive book on the subject concludes there is "no clear, single answer" to "what makes education environmental" (McInnis and Albrecht 1975), UNESCO's recent "Belgrade Charter" (Connect 1976) says environmental education is a life-long, interdisciplinary approach to the development of "a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones."

Whatever definition of environmental education you employ, all will invariably have certain common denominators. First, there is a hard core of ecological content. Second, a recognition of worldwide problems of crisis proportions. Third, a component of conscience, of a value system. And fourth, a commitment to private

and public action. The whole is focused on a comprehensive rather than a compartmentalized approach to change in people-land relations,be they open-country or urban, and typically with an element of wildlife conservation. Environmental education and wildlife conservation are invariably seen as associated in their principles and mutually supportive in fact. The past, present, and potential of that relationship are the burden of this paper, as we examine the antecedents of environmental education, the environmental education-wildlife legacy, the environmental education-wildlife ecosystem today, and assessments-azimuths for the years ahead.

ANTECEDENTS OF ENVIRONMENTAL EDUCATION

Environmental education did not "burst upon the scene in the wake of World War II," as some writers are wont to suggest (Swan 1975). It is more correct to say environmental education has come gradually to first flower. It is a plant of many roots, many stalks, many branches, and many fruits, some of the latter relatively unpalatable. From its antecedents, several of them dating back a century, environmental education has drawn a number of its characteristics. One of the oldest root-stocks is nature study, a sort of transcendental search to understand the "vast, pulsing harmony" of our natural environs. Ecology represents a more sophisticated "study of the interrelations of organisms and their environments." Conservation education adds the concept of a concern for the wise use of natural resources over time. In a recent form, conservation education becomes energy education. Outdoor education contributes a hands-on approach to experiences that can cut across the curriculum. Citizenship education seeks to generate an appreciation of the American endowment and a commitment to social action. Consumer education focusses on the shortcomings and excesses of our economic system. Population education attacks the twin shibboleths of limitless growth and conspicuous consumption. Resource management education represents the professionalization of certain distinct people-land relationships: soil conservation, water management, game management, park management, urban and regional planning, landscape design, architecture, metropolitan management, environmental engineering, environmental health, environmental

law, and so on through the departmentalization of universities. Philosophy and religion, on occasion, address the esthetic and ethical dimensions of Leopold's (1947) community of life that "includes the soil, waters, fauna, and flora as well as people."

It is environmental education that tries to put it all together. Environmental educators of many stripes seek a rigorous understanding of "the integrity, stability, and beauty" of the community of life, a hearty awareness that "a thing is right only when it tends to preserve" that community, and a tough rejection of "the argument that an action is impossible if it does not yield quick profits, or that an action is necessarily to be condoned because it seems to pay." That philosophy, as Leopold said (1947), "is dead in human relations, and its funeral in land relations is long overdue." To make operational this "ecological conscience" constitutes the intellectual revolution the "subversive science" of applied ecology seeks to foment (Shepard and McKinley 1967).

A basic message of environmental education is interdependence--that everything is connected to everything else. That is the principal intuition of the 20th century (Perlinski 1975). The practical problem lies in how to recognize and effect sound, fair trade-offs among energy, economy, and environment.

A basic characteristic of environmental education is that diverse men, women, media, methods, and modes are involved. The conventional wisdom says that public education is what goes on in the schools. In the case of environmental education, at least, nothing could be further from the truth, as an examination of the evolution of the movement will reveal: "The rapidity with which steps have been taken to impose a new (environmental) orientation on social and technological trends....is less a result of conventional education than of widespread awareness generated by concerned citizen groups and by the news media" (Dubos 1976).

THE ENVIRONMENTAL EDUCATION-WILDLIFE LEGACY

From an examination of the components and antecedents of environmental education, this significant fact emerges: Whatever the total complement of environmental education, wildlife conservation constitutes a key element--a valuable point of entry, a rich source

of illustration, a stimulus to action, and even an aspect of ultimate rationale.

The earliest type of education had to be a type of wildlife-related environmental education. Prehistoric man's survival depended on his knowledge and understanding of his environment (LaHart and Tillis 1974). Hence he evolved as a superb ecologist. He could not run fast enough to escape his enemies; if caught, his teeth and claws were small protection. So he had to become a student of his relationship to the veldt. Peering from his hiding place in the bushes around a clearing or from the opening of his cave, his science was the practical kind. His laboratory was the place he lived; the success of his observations could be measured in whether he made it through the night or didn't (Fabun 1970).

Today wildlife may well be perceived by the general public as the most universal symbol for the concept of environment. The people-wildlife relationship is a part of the very fabric of society. Wildlife has represented food, clothing, instruments, companionship, ally, and adversary. It was not a cross that was the secret sign of the early Christian; it was a fish. Contemporary lodges are known as eagles, elks, lions, and cubs. A ubiquitous trademark of conservation was Smoky Bear. His environmental successor is Woodsy Owl. Children particularly identify with wildlife--"they live and breathe just like us." The fundamental wildlife management concepts of carrying capacity (that you can put only so many sardines in a can), and of the limited ability of the biota to adjust to violence (that there is no such thing as a free lunch)--these "laws" of ecology are understandable in the crossroads of the country. Hence the early realization that what can happen to crustaceans, condors, and cougars can happen to us.

THE EVOLUTION OF ENVIRONMENTAL EDUCATION

Beginning as early as the 1870's it was the hunter, fisherman, and birdwatcher in search of science, serenity, or recreation in the outofdoors who first sensed in any number the ill effects of what Eric Sevareid was later to call "the mis-development" of America. Outdoorsmen saw the ravages of logging and forest fires, of farm

soil erosion, of lake and stream pollution--and the resulting destruction of fish and wildlife habitat. Sportsmen and bird lovers approached these problems with some of the patience and perseverence of the stalk--but with none of the silence. They began to call loudly, through voluntary organizations and campaign literature, for government help (NSSF 1971). While it was individual states that invariably took the lead in early conservation action, the evolution of the movement can best be traced at the national level.

What is now the large and vigorous National Audubon Society began as unaffiliated state groups. Together with the American Ornithologists' Union, founded in 1883, they became "the well-spring from which flowed a large part of the modern conservation movement" (Graham 1971). In their educational campaigns against destructive pressures on bird life, their first target was invariably that venal predator, the market hunter.

The Woodward and Bernstein of the early conservation movement were outdoorsmen George Bird Grinnell and Emerson Hough, Grinnell as editor and publisher of Forest and Stream, a high-class New York weekly, and Hough as his prize investigative reporter. Through a long series of editorials and exposes, they educated the public to support pioneer state and federal legislation affecting parks, forests, and wildlife. (Reiger 1975). It was a Boone and Crockett sportsman, Teddy Roosevelt, who propelled conservation into the national lexicon from his "bully pulpit" in the White House. At his side was the premier pioneer adult educator of the day, Gifford Pinchot, head of the infant U.S. Forest Service (Strong 1971). A biographer of Pinchot as an educator says the devices his team used were "as sophisticated as any could have been without the availability of broadcast media"(Levin 1972). From the campus of Cornell University, Professors Liberty Hyde Bailey, Anna Botsford Comstock, and later E. Laurence Palmer were to begin to pour out at the time their long series of Rural School Leaflets on nature study. Their disciples were Professors L.B. Sharp and Julian Smith in Michigan, espousing Life Fresh Air Camps to "teach outdoors that which can be best taught there" (Swan 1975).

Two other teams of adult educators were to play major roles in the early conservation movement. The combination of Robert Underwood Johnson as editor of Century Illustrated Magazine and John Muir and John Burroughs as his nature writers led directly to legislation setting up national parks (Mott 1957). Bringing the new National Park Service itself to the attention of the public was the work of two former New York Sun reporters turned adult educators, Stephen Mather and Robert Sterling Yard (Fischer 1973). Mather sponsored the rise of a particular breed of environmental educator, the interpretive naturalist in the national parks, beginning at Yosemite in 1920 (Weaver 1976).

Admittedly the first conservation groups and bureaus tended to identify relatively simple abuses and urge relatively unilateral solutions. But their growing insights and energies led in the 1920's to the founding of what can be called the nation's "first true citizen action environmental organization," when 54 devotees of the outdoors met in Chicago to "call a halt to water pollution" under the banner of the Izaak Walton League of America (Hauseman 1976).

In the 1930's the emerging profession of wildlife management understood at the outset that fish and wildlife are the product of habitat, and its practitioners began to teach basic truths about interactions, interdependencies, and interrelationships of organisms with each other and with their environments. As editor, writer, and broadcaster on wildlife research, administration, and conservation for the U.S. Fish and Wildlife Service, Howard Zahniser introduced radio and conservation to each other (Clepper 1971). He had a master colleague in adult education--FDR and his fireside chats on CCC, SCS, and TVA.

In 1934 appeared the first Roger Tory Peterson Field Guide to the Birds. It sold out immediately and has never been headed. Few people have drawn so many other people to an active awareness of the natural world as this unusual writer-painter-photographer-lecturer-ornithologist. Significantly, Peterson characterizes himself as "really a teacher, teaching through a visual medium" (Graham 1971).

The 1930 decade saw hunters and fishermen add a striking national dimension to the public's perception of conservation: They voluntarily taxed themselves, their sporting arms, their ammunition, and their fishing tackle to provide special federal funds with which to purchase wildlife habitat and perform wildlife research. Today the National Audubon Society is sponsoring a bill that will tax camping and birding equipment to fund nongame research and development (Line 1976).

If one is pressed to put a date on the arrival of the environmental age, it would not be E-Day, April 22, 1970, but in 1954, when an unprecedented consortium of conservation groups, put together by a remarkable David named Brower, head of the Sierra Club at the time, took on the Goliath of the Western waterpower development interests--and won, by slinging an educational campaign squarely between the eyes of a scheme to inundate Dinosaur National Monument. Congress capitulated (Nash 1969). Dinosaur saved was a symbol of something very significant. Conservationists of diverse hues had coalesced into a public education tool of great effectiveness, using economic statistics quite as much as esthetic sentiments to stop in its tracks what had hitherto been called destiny. Their appetite for action whetted by their new-found sense of power, Sierra Clubbers and their colleagues were poised for the environmental decade.

In 1962 a rather small paperback hit the bookstands of America with all the impact of a blockbuster, authored by a former U.S. Fish and Wildlife Service editor/biologist. Quietly and calmly she questioned the massive use of chemical pesticides. Rachel Carson's Silent Spring probably did more to alert the American people to the critical needs of their environment and their own health than any form of adult education before or since (Trefethen 1975). The message was reinforced by Udall's Quiet Crisis in 1963, a paperback edition of Leopold's Sand County Almanac in 1966, the Rienows' Moment in the Sun in 1967, and Erhlich's Population Bomb in 1968, and Commoner's The Closing Circle in 1

The specific term "environmental education" was probably first introduced by Mathew J. Brennan (1974), Director of the Pinchot Institute for Conservation Studies, speaking to the American Nature Study Association in 1964. His pioneering 1969

People and the Environment curriculum guide used wildlife as a symbol of the interdependence of all living things.

Television as an inadvertent tool of mass environmental education came dramatically to the fore in 1969 with brilliant camera coverage of two compelling scenes: the view from the moon of a very fragile, finite spaceship earth, and the photogenic blot on that planet when an ugly oil slick emerged from Platform A of the Union Oil Company in Santa Barbara Channel. The same year environmental education acquired academic respectability with the appearance of the scholarly Journal of Environmental Education.

From all such sentiments and scenes in the 1960's the broad realization grew that humankind itself was a part of the environment, that our welfare was at stake, and that it hinged upon the welfare of all other things, animate and inanimate (McInnis and Albrecht 1975). Environmental education emerged to seek "a rather fundamental reordering of thought and action away from growth, control and mastery over nature, and progress traditionally defined, and toward an ecologic ethic and different definition of 'quality of life' than that which has incurred such environmental cost" (Miles 1976).

The federal institutionalization of this ecological conscience came in 1969-70 with a Council on Environmental Quality, an Environmental Protection Agency, a National Environmental Policy Act, and a National Environmental Education Act--the President of the United States declaring that "we must measure success or failure by new criteria; wealth and happiness are not the same thing."

In competition with war, Watergate, welfare rolls, and Arabian oil wells, in the 1970's environmental education has lost a good deal of its glamour but none of its gut significance. If anything, the 1973-74 Middle East oil embargo at least temporarily re-introduced a deep, old concern about resource quantities to accompany the newer concern for environmental quality. Wildlife conservation had led the way, and continues to lend broad public appeal and ecological substance to environmental education today.

The official marriage of environmental education and wildlife was performed in 1973 by Professor Durward Allen and his Committee on North American Wildlife Policy.

"There is no greater challenge of our time," the Committee reported, than "environmental education of many kinds," focussed on "today's great environmental issues that are, literally, without limit," particularly since "wildlife and outdoor pleasures are the most fragile and vulnerable part of our living standard." By 1976 the Fourth International Congress of the World Wildlife Fund focussed on "the urgent need for international cooperation and understanding in seeking solutions to global environmental problems" that transcend wildlife issues.

THE ENVIRONMENTAL EDUCATION ECOSYSTEM TODAY

A wide variety of institutions, agencies, and organizations have an assigned or assumed mandate today to engage in environmental education, usually with a wildlife component. What might be called the environmental education ecosystem has five principal elements: the mass communication media, government instrumentalities, eco-action organizations, industry and labor, and educational institutions. A brief look at the interplay of each of these elements with the environmental movement in general and wildlife conservation in particular will clarify the varied role of education in the national quest for environmental sanity today.

The Mass Media

In the morphology of American ideas it is frequently specialized periodicals that set the national agenda. It was so with the environmental movement, and it was veteran wildlife-associated magazines that initiated early on the concern for the broader dimensions of conservation, typified by Sports Afield's "Running Sores on the Land" series on water pollution in 1948. But it was the explosion of a new array of specialized journals in the 1960's that really focussed attention on environmental affairs: Environment, Environmental Action Bulletin, Environmental Action, Earth Times, Clear Creek, Environment Monthly, Ecology Today, ZPG, Environmental Quality, The Journal of Environmental Quality, Environmental Science and Technology, Earth Watch, Not Man Apart, Environment and Human Behavior--it took a new bibliographic service, Environment Access, just to keep up with these new media of public education. Their collective impact led

the country's 13 largest general-circulation magazines to devote whole issues to the environment in the five months of late 1969 and early 1970. Radio, television, and newspapers then joined in. By 1971 environmental issues topped the list of press editorial topics, and Pulitzer prizes had gone to environmental reporters, one of whom became a member of the original President's Council on Environmental Quality. What the mass media accomplished in "bringing scientific and social knowledge to citizens is close to miraculous" (Williams 1971).

The extent to which environmental coverage has metasticized throughout the media is little short of stunning. Such diffusion of the word has brought an early death to some of the upstart "environmental" periodicals; many others continue to flourish in well-established ecological niches, as it were. The most complete and current directory now lists 93 old, new, or retreaded periodicals that deal substantially with environmental issues broadly defined (Metress and Metress 1976). The number of articles on wildlife listed in the Readers' Guide to Periodical Literature actually rose from 27 in 1971 to 55 in 1975. Today it is perhaps of telling significance that in James A. Michener's (1975) latest book, Centennial, an ecological novel if there ever was one, the hero is a defender of "primitive areas held inviolate." Thus is the environmental ethic now expressed in a current best-seller. Hopefully the coming movie version will treat the theme with finesse.

The tremendous potential of the audio-visual media in environmental education has been relatively untapped. True, we have the superb natural history films of Jacques Cousteau and others of his calibre, but their net message is not always didactic enough to energize action. Commercial television gives sporadic attention to environmental issues, real and imagined, but there is nothing like the consistent coverage in depth the subject demands. Yet to emerge are the script writer-cameraman teams that can translate a Sand County Almanac into prime-time drama.

Perhaps nothing has so changed the face of environmental coverage in the mass media as has the requirement of the National Environmental Policy Act for the develop-

ment of environmental impact statements on federally-funded projects, accompanied by related requirements in many states. The "102" statements have automatically provided two basic "news" ingredients--they are events that are happening now, and they have a high component of conflict. So they have become grist for the media mills. When they have prompted court suits and counter-suits, they have doubled and quadrupled both the quantity and the quality of media coverage.

Government Instrumentalities

All three branches of government at all levels engage in environmental education. Understandably, the resource management agencies of the executive branch are the most directly involved.

Federal, state, regional, and local bureaus of conservation, environmental protection, and land management traditionally have recognized what they typically call the information-and-education (I&E) function, and today are giving it renewed emphasis, not only to explain regularly to the public how they are spending public funds, but also to set before the public an agenda for environmental action. To foster or keep pace with the environmental movement, the resource management agencies have broadened their educational efforts in both scope and depth. Whereas yesterday their public messages were aimed primarily at boosting the particular roles of the various bureaus, today there is a growing acceptance of the interdependency of all conservation problems and programs, and a recognition of the compelling need for broad public understanding of that interdependency.

At the Washington level, the Forest, Park, and Soil Conservation Services have taken the lead in formal environmental education. The various media and methods of education employed by the USFS today have been called "models of the art" (Smith 1971). The NPS embraces an array of environmental education efforts built around "specially developed teaching materials and experiences" (Evison 1971). The SCS has utilized admirably its own built-in grass roots educational arm, the local Soil Conservation District. Particularly through its regional monthly newsletters, the newer Environmental Protection Agency has added an important air of currency to environmental

education materials. Also, the annual reports of the President's Council on Environmental Quality have become essential textbooks on college campuses. In such company the U.S. Fish and Wildlife Service seems to bring up the rear. Its arsenal of educational materials is limited, and it has been slow to utilize its refuges as the outdoor education sites that research has shown would be both appropriate and appealing (Fowler and Bury 1973).

Sadder still has been the performance of the U.S. Office of Education. Never really committed to the antecedent conservation education, USOE did not respond to the opportunity manifested by the Environmental Education Act of 1970 (Brezina and Overmyer 1974). Unless the well-intentioned Alliance for Environmental Education can get off the ground, the situation may persist. Environmental education has no effective political constituency of its own, and it challenges some deepseated tenets of American politics. At the moment the cohesive forces are William E. Kardash's Environmental Education Report, the Conservation Education Association, the National Association for Environmental Education, and the ERIC/SMEAC Science, Mathematics, and Environmental Information Analysis Center, a joint project of The Ohio State University and the National Institute for Education. A 1976 North American Regional Seminar on Environmental Education, organized by the Alliance, could breathe substantial life into that promising confederacy. Another encouraging development is a recent NAEE spin-off in the form of a Council of State Environmental Education Consultants-Coordinators-Supervisors to energize more efficient exchanges of information and insight among the emerging state environmental education planning bodies. Some 25 states now have master plans for environmental education, although the plans may be "on the shelves drawing dust" in the absence of adequate "reward systems" for participation (Wert 1976). Rocchio and Lee (1974) have offered a guide to state environmental education planning in the absence of federal leadership.

Environmental conflicts have projected the courts into a primary role in environmental education, spurred by the NEPA insistence that the public participate in land use planning. Citizen involvement in resource management is today "one of the country's

most important continuing education programs"(Applegate 1975). It is probably true that particularly wildlife management planning can achieve its ends "only through hard-line citizen participation" (Brandborg 1974). Initially environmentalists did not know how to ask the right questions, and judges did not know how to deal with environmental values. Today, with the interpretation and development of environmental law, new legal precedents are easier to come by (Jackson 1976). Perfecting patterns of public involvement in environmental policy-making may prove as challenging as any aspect of environmental education: "If war is too important to be left to generals, the environment is too vital to be left to professional land managers" (Robinson 1975).

Environmental Action Organizations

While government agencies and the mass media can deal with the content and conscience components of environmental education, it remains largely for voluntary organizations to contribute the commitment to action. And fortunately it is in this realm where wildlife policy is backstopped by some of the oldest, well-financed, and adept of the environmental action groups. Their comprehensive stance today is typified by this statement from the National Wildlife Federation: "Conservation is no longer just the story of vanishing wildlife and vanishing wilderness areas. There is a new urgency in the word today. Suddenly, as we stop and look at our total environment, it has taken on the meaning of human survival" (Zinn 1970).

The environmental track record of such wildlife groups is simply very good indeed. For example, when a wilderness bill was first introduced in Congress in 1956, among its charter supporters were the National Wildlife Federation and the Wildlife Management Institute (Mercure and Ross 1970). Today if you want to block an environmental insult like some dams, highways, mines, massive spraying, or lake pollution, you will invariably find wildlife societies at your side.

The time-tested wildlife groups have effective new allies, like the hard-hitting educational materials coming from David Brower's rebel Friends of the Earth, the brass-knuckles media campaigns conducted by Environmental Action, Inc., against its annual "dirty dozen" list on Congressmen with poor environmental platforms, the savvy

briefs filed by the Environmental Defense Fund around the country, and the Wilderness Society, now 111,000 strong after a 1935 start with nine. As Thurman Trosper, recent president of that Society, has said simply, "Our mission is education,....We try to work quietly with individuals at the grass roots, with dedicated citizen leaders" (Trosper 1975).

Industry and Labor

The resource industries particularly have been into conservation education for many years via all manner of institutional advertisements, films, and manuals. While many of their messages admittedly were self-serving, the fact that contour plowing is a well-understood symbol of soil conservation is a tribute in part to the effectiveness of the campaigns of farm implement manufacturers. However, the population-pollution-pesticide era caught industry as a whole off base. An early issue of Environment Monthly was devoted to "the pitiful environmental showing of the public relations profession." In too many cases, the response of business was not-too-polite blackmail: "We don't pollute very much, we can't afford to cut it out, and if you don't stop harassing us we'll move somewhere else" (Klessig 1972). While business and industry in general cannot be said to have become the white hats of environmentalism, a recent issue of Environment Monthly was able to recognize a half-dozen leaders "for making environmental excellence a basic condition in the pursuit of corporate goals" (Hauseman 1976). Among the very best ecological primers in circulation today are Kaiser Aluminum's Ecology: The Man-Made Planet, and Bank of America's Getting Down to Earth. One of the spriteliest new environmental newsletters is the Phoenix Quarterly, put out by the Institute of Scrap Iron and Steel.

In any final battle of Armageddon between economics and ecology, organized labor may well hold the ultimate weapon. If the AFL-CIO and its sister unions were to negotiate for a sanative environment as well as for wage and job security, the shot could well be heard around the world. To date, the rhetorical posture of the AFL-CIO national headquarters is impeccable. Leading labor men and their money have played key roles in environmental education. It was Leonard Woodcock (1976) who recently

called for a common cause between union members and environmentalists because "a healthy economy cannot exist in an unhealthy environment, just as only a strong economy can enable us to achieve that healthy environment." At the local level, however, the voice of labor is mixed, with unions fronting for nuclear power plants and opposing bottle bills, for example. So long as the most endangered species in America is the Detroit auto worker, labor's position on environmental issues will be as excruciating to develop as it is pivotal to any kind of social and scientific entente on environmental affairs. As much as in laboratories or legislatures, the next chapter in environmental education will be written in union halls. And "farmers must be included in the dialogue" (Limvere 1976).

Educational Institutions

If the mass media were the midwives of the environmental movement, the campuses were its cradle. The college and university impetus took two forms. First, the early warning radar voices of environmentalism were almost without exception those of professors--the Leopolds, Ehrlichs, Dasmanns, Commoners, Rienows, Hardins, Coles, Odums, Allens, Whites, McHargs, Strong, and so on. As Aldo Leopold once said, an ecologist lives in a world of wounds; the ecologists began to cry out in strength in the early 60's. At the same time, in quiet faculty committees there were emerging the prototypes of the environmental studies courses, centers, institutes, projects, and programs that were to proliferate in the 70's like mushrooms after a spring rain. Today no self-respecting campus is without some gesture toward environmentalism, and the more substantial enterprises represent a major departure in university focus and format toward interdisciplinary, multi-functional, problem-oriented teaching, research, and outreach (Aldrich and Kormondy 1973), (Pratt 1974).

At the undergraduate level a tilt toward the ecological may represent nothing more substantial than cosmetic changes in catalog course descriptions, but on the other hand it can provide a new, holistic approach to the liberal arts. Where such environmental studies are offered as broad education for responsible citizensip, they

are praiseworthy; where they are passed off as professional programs, they are a fraud on students who will never find entry positions as environmental generalists.

At the graduate level the environmental impulse has led to remarkable alliances among the sciences, the social studies, and professional schools hitherto confined by the rather rigid departmentalization that can characterize universities. This cross-fertilization of scholarship may well be environmental education's greatest contribution to university enterprise.

It all is having a significant impact on the elementary and secondary schools. Prior to 1970 the subject of conservation was largely confined to an outdoor unit in sixth-grade physical education and the last chapter of the ninth-grade science text. That year Roth pioneered a cross-discipline list of 112 fundamental concepts for environmental education, K-16, and Archbald (1970) distilled them to a dozen key words. Today a new generation of teachers is increasingly injecting environmental content or conscience into the full range of subjects and years. As backstop, the classroom teacher has a wide variety of exciting new study guides, simulation games, field kits, manuals, and films, and often a not-so-exciting array of administrative verbiage in place of the wherewithall with which to purchase teaching materials. One of the best bibliographies of environmental education materials available for elementary and secondary schools is that compiled by Howell and Osborn (1975). To lead him or her by the hand, the classroom teacher has such field-tested manuals as those on environmental education activities by Stapp and Cox (1975). The school administrator willing to put his money where his mouth is has an excellent guide to the in-service training of teachers in environmental education (Gallagher 1975). There appear to be distinct trends towards "a widespread offering of courses in environmental science, the development of written environmentally-oriented curricula, and better local financing of environmental education programs" (Trent 1976). A definitive state-by-state report on the status of K-12 environmental education in 1975 (Disinger and Bowman) suggests the breadth and diversity of the movement today.

The less formal educational institutions--such as libraries, museums, youth organizations, civic groups, and so on--are likewise the sites of stepped-up environmental education. Indeed, the environmental movement has brought about the recrudescence of that special educational agency, the nature center. Various types of such centers are bringing a tangible view of spaceship earth to thousands of citizens around the country. While their message may sometimes be overly sentimental and anthropomorphic, it at least fills what otherwise would be a vacuum for the urban-bound (Holtz 1976). The National Audubon Society has recently put out a directory of 558 nature centers, up over 200 from the number in 1969. For communities contemplating centers, the Society has a stunning set of guidebooks (Shomon 1975).

The largest and in many ways the most effective informal adult education activity in the United States is the Cooperative Extension Service, epitomized by the "ag agent" in virtually every county seat in the country. Where once he may have been promoting some deleterious farm practices, today the county agent is starting to develop lines of communication with community conservation commissions and other public and private environmental groups; and he is being supported by an increasing array of environmental education materials eminating from the universities.

ASSESSMENTS AND AZIMUTHS

From this brief inspection of the environmental education ecosystem today, we can see that the battle does not lack for battalion commanders. But are the troops getting the word? That is debatable. There are no environmental quotient (EQ) tests that have measured national ecological literacy over time. The Opinion Research Corporation reported recently that "environmental protection has been transformed into a popular, institutionalized movement which shows little sign of abating, even during a period of economic stress" (NAEE 1975). But any public popularity of environmental protection has yet to be translated into, for example, a widespread renunciation of the eight-cylinder passenger car or canned beer. While a triennial

study of campers in a midwest National Forest indicated their academic EQ in 1974 was significantly above that of 1968, the energy situation in 1974 "had no limiting effect on the outdoor recreation patterns" of the same campers (Schoenfeld and Smith 1975). A research report by Asch and Shore (1975) provides evidence that a group of children exposed to a formal program of environmental education can demonstrate, in a natural setting, more conservational behavior than a control gorup, and less destructive behavior. But teen-age vandalism generally can scarcely be said to have abated. Or, as Rienow (1976) asks, "Is it not some index of the failure of environmental education that we have eliminated three per cent of the world's 4,000 wildlife species, and that the pace of extermination has increased by fifty per cent since 1900?"

On the whole, however, it would be very difficult to argue that environmental education may not have had an impact on the course of national events in the past five years: strengthened air and water pollution control programs; land and water conservation funds; embargoes on SST's, Florida airports, western power plants, and Carolina dams; an Alaskan pipeline brought under some semblance of surveillance, the same for a massive underground radio antenna; a rare and endangered species act; a slowdown in the birthrate; the search for an entente with nuclear energy, strip-mining, and I-highways; eastern Wilderness officially classified--these and other actions are not necessarily accidental; they may be the fruit of a new view of people-resource relationships, engendered by environmental education in many forms. Stamm, Dervin, and Laing (1975) have found that both environmental concern and environmental knowledge are associated with increased willingness to take environmental action, and that media use contributes to increased willingness, yet they caution "interpretation of such findings within a causal framework is equivocal."

Whatever, in a larger sense we have done only what was easy, or what government could do, or both. We have not really confronted the profound changes in interdisciplinary science and individual lifestyle the environmental imperative may demand. It could be we will be saved only by profound research applied to environmental needs,

coupled with a hippy-type culture with a hair cut, as it were, a culture composed of fewer addictive consumers and compulsive wasters, yet one retaining the luxury of indoor plumbing. We must believe it inconceivable that a country which has passed from Depression and global war to a learning society cannot somehow discover the technological and philosphical insights that will preserve the human animal in some state of reasonable harmony with his fellow passengers, great and small, on their mutual spaceship. A reasoned optimism is a requirement for progress. To take undue counsel of our fears is to court defeat. But another requirement for progress is diligent leadership, at the highest levels of government and in all the elements of the environmental education ecosystem.

What, then, should be our azimuths in environmental education in support of wildlife in the years ahead?

At the outset, environmental educators might well stop arguing about the relative merits of affective process vs. cognitive content, and get down to work; there's plenty of room for everybody. And they could stop complaining about lack of federal funding and, instead, energize home-talent programs; it's a myth that we must have somebody else's money to do our thing. Environmental activists need less preaching and more politicking; reluctance to use "the system" merely means the system will have that much more opportunity to ignore environmental issues. Nature lovers of preservationist bent cannot simply turn the clock back to an agrarian era; they must accommodate the complex economic and technological realities their fellow citizens face. Schools and colleges increasingly can involve all the disciplines in presenting environmental studies as an essential ingredient of basic curricula, and in getting both students and faculty out of the classrooms to encounter real-life environmental issues (Witt 1976), (Cook 1976). The voluntary citizen organizations that have largely carried the conservation education ball over the years can mute their parochial messages and sharpen their tools of leverage. The resource management agencies need an expanded research base that will replace seat-of-the-pants hunches with documented options. Business and labor must make peace with environmental constraints quite as much as with the rules of economics. The media can lend to the environment the same continuing coverage in depth they habitually devote to the stock market and sports. Collectively, environ

mental education can develop an over-all strategy, identify some attainable priority targets and attack selected beachheads one at a time, instead of trying to win the war by knee-jerk massive retaliation, albeit recognizing that profound social, political, and economic tides will ultimately control the scope and velocity of the attack. Particularly, there is great need for solid research as the basis for excellence in environmental education (Smith 1976). Models for evaluating environmental education programs are "almost non-existent" (Wert 1976). But at least Roth and others (1976) have perfected a methodology and technique for measuring environmental literacy and have established a baseline through studies of high school students in the United States, England, and Australia. The CEQ might well provide the wherewithall for follow-up studies over time. To carry environmental education forward more vigorously on the part of educational institutions, leaders call for evaluation research, for something more than lip-service aid on the part of state bureaus of public instruction and resource management, for broad-based public planning, and for an end to naivete in seeking political support and private funding (McInnis and Albrecht 1975). Above all, we must ask ourselves this tough question: Is there enough emphasis on the attainment of environmental literacy at the grade school level if we are to protect wildlife in the long run? Meriting wide adoption are the Environmental Science (ES) and Outdoor Biology Instruction Strategy (OBIS) programs developed recently under the aegis of the National Science Foundation.

The strategic continental objective is an open marketplace of ideas, with environmental educators of varying persuasions vying for attention, outlining varying options, and contributing to a mass facility with the democratic decision-making process. It is the making of sophisticated choices, the rendering of subtle value judgements, that is the essence of environmentalism today, whether the issue is weaponry, water, or whales. The prime task of environmental education is a good old American goal--to reinforce more freedom of choice. The citizen who <u>wants</u> to conserve must be given more <u>chance</u> to conserve--in the home, in the marketplace, at the ballotbox, Environmental educators will increasingly be put to the test of discovering and implementing

viable options in an unemotional, objective, self-disciplined manner. If their expertise comes wrapped in superficiality, pretentiousness, over-emotion, or, even worse, intellectual dishonesty, they only add moral insult to environmental injury in a most unecological way. We must seek surely more emphasis on (1) a basic understanding of the earth's resources, (2) a knowledge of their interrelationships, (3) identification of each problem and its root cause, and (4) options for corrective action that attack the disease, not its symptoms (Jordahl 1976).

THE ULTIMATE RATIONALE

Fish and wildlife are widely perceived by many, many people as indicators of environmental health, so they are natural accoutrements of the net environmental education experience. A direct or vicarious retreat to their habitat provides a striking opportunity to acquire a perception of the oneness of our world. To partake of the natural processes by which the land and the living things upon it have achieved their characteristic forms and by which they maintain their existence, to become aware of the incredible intricacies of plant and animal communities, to sense intrinsic natural beauty and its contrasts with creeping neon degradation--this is to learn the great lesson of people-environment interdependency: that insects, birds, fish, mammals, water, soil, wilderness, trees, plants, factory, store, suburb, city, and people are all part of the same scheme--an intricately woven fabric. Snip one thread and the entire cloth begins to unravel; stitch up one tear and you begin to repair the whole. Exposure to wildlife, however casual or however intense, can be a doorway to the ecological understanding of our utter interdependence with our environment and with life everywhere, to the development of a culture that will secure the future of an environment fit for life and fit for living, and to an appreciation of all those amenities that are inexorably linked to the inner prosperity of the human spirit.

The ultimate purpose of wildlife conservation, then, is really much more than a concern for wildlife <u>per se</u>. It is our whole <u>weltanschauung</u> that is at stake. Conserving wild life tests the totality of our relationships with people and land, and it is the presence of wildlife at harmony with its environment that is perhaps the best measure of our succes

If we botch up wildlife conservation we reinforce a subtle pattern that can progressively degrade our very nature. When we accomplish effective wildlife conservation, manifested by the presence of natural wildlife, we reinforce the emergence of a mass ecological conscience (Hine and Schoenfeld 1969).

Tradition has it that geese in the Temple of Juno once saved the city of Rome. In 390 B.C. the Gauls attacked and drove the Romans to a steep, rocky hill known as the Capitol, which was used as a fort. One night the Counsel Manlius was awakened by the cackling of the sacred geese. Rushing to the wall, he saw that the Gauls had almost climbed it. His shouts and the noise of the geese alerted the other defenders, and Rome was saved. Today, as we seek to save wildlife species, the act saves us.

But environmental education in association with wildlife conservation can no longer take its impetus from the shop-worn concept of maximum sustainable yield of a single-target game species. To be true to itself, environmental education in support of wildlife conservation must recognize that the privilege of utilizing a wild living resource--in either a consumptive or a non-consumptive manner--carries with it the obligation to adhere to five primary principles synthesized by Talbot (1976):

1. The ecosystem should be maintained in such a state that both consumptive and non-consumptive values can be realized on a continuing basis, ensuring present and future options, and minimizing the risk of irreversible change or long-term adverse effect.

2. Management decisions should include a safety factor to allow for limitations of knowledge and imperfections in management.

3. Management enphases must correct the situation that saw only 3.5 percent of the total wildlife management funds of 13 federal agencies directed to nongame wildlife in fiscal 1975; and only 1 percent on the average among state agencies.

4. Measures to conserve one resource should not be wasteful of another.

5. Resources should be surveyed or analyzed prior to planned use, and constantly monitored during use; the results should be made available promptly for critical public review.

Such guideleines are not really new. They are simply a long overdue approach to the application of basic ecological principles to the real life of wildlife management. Environmental education is their natural habitat.

CONCLUSION

In many ways wildlife represents the basic concept of environment, and wildlife conservation represents ecological conscience in action. Such content and commitment, mobilized comprehensively in an attack on problems of crisis proportions, is the essence of environmental education.

Environmental education involves imparting cognitive content about the environment through written, spoken, or pictorial messages, and arranging affective experiences through environmental encounters. Environmental educators come in pelage of many colors. They seek to encourage public awareness of environmental problems; public understanding of underlying principles, issues, and options; and a public commitment to individual and collective action, including wildlife conservation.

In our society, enlightened resource management for environmental responsibility depends to a great extent on this aware, informed, understanding, and active public. To a significant degree it is professional interpreters of environmental issues who will help form the public attitudes and actions that are at the heart of identifying environmental problems and arriving at solutions in keeping with ecological principles, engineering capabilities, esthetic values, and economic wherewithall.

Growing national programs of resource management for environmental responsibility depend increasingly on regional and local involvement. Environmental educators can help provide sound educational materials and adept counsel on the facts of environmental housekeeping. They can help lay a basis for environmental action by clarifying the choices in land and water use, by relating them to viable values and social objectives, by preparing people for constructive change, and by interpreting practical guidelines to the emergence of a national ecological conscience, typified by a sanative wildlife conservation policy.

The capacity to live without befouling and denuding the environment--this was Leopold's (1933) test of whether we are civilized. A compassionate wildlife policy, nurtured through environmental education, can be one of the means of developing a culture that will meet this test.

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REFERENCES

Aldrich, James L., and Edward J. Kormondy. 1973. "Environmental Education: Academia's Response." The Journal of Environmental Education, 3(3): 1-4.

Allen, Durward, et al. 1973. "Report of the Committee on North American Wildlife Policy." Transactions of the Thirty-Eighth North American Wildlife and Natural Resources Conference. Washington, D.C.: Wildlife Management Institute.

Applegate, Rick. 1975. "Citizen Participation in Environmental Decisions." Western Wildlands 2(2): 27-31.

Archibald, David, and Paul Gundlach. 1970. "Environmental Education: An Integrated Approach." The Journal of Environmental Education, 1(3): 75-76.

Arnsdorf, Val. 1976. "A Report on the Nature and Status of Environmental Education" in Current Issues in Environmental Education. Columbus, Ohio: ERIC/SMEAC Clearinghouse.

Asch, Joseph and Bruce M. Shore. 1975. "Conservation Behavior as the Outcome of Environmental Education," The Journal of Environmental Education, 6(4): 25-33.

Brandborg, Stewart, M. 1974. "The First 10 Years." The Living Wilderness, 38(127): 43-44.

Brennan, Matthew J. 1969. People and Their Environment: Teachers' Curriculum Guide to Conservation Education. Chicago: Ferguson.

Brennan, Matthew J. 1974. "Total Education for Total Environment." The Journal of Environmental Education, 6(1): 16-19.

Brezina, Dennis W., and Allen Overmyer. 1974. Congress in Action: The Environmental Education Act. New York: Free Press.

Clepper, Henry. 1971. Leaders in American Conservation. New York: Ronald.

Connect. 1976. UNESCO-UNEP Environmental Education Newsletter. 1(1): 1-4.

Cook, Robert. 1976. Professor of Ecology, University of Wisconsin-Green Bay. Personal correspondence in author's files, 7 June.

Disinger, John, and Mary Lynne Bowman. 1975. "Environmental Education 1975: A State-by-State Report," Environmental Education Information Report. Columbus, Ohio: ERIC/SMEAC.

Dubos, Rene. 1976. "The Despairing Optimist," The American Scholar, Spring: 168-172.

Evison, Boyd. 1971. "The National Park System and Environmental Education," in Schoenfeld, Editor, Outlines of Environmental Education, 39-40. Madison, Wisconsin: DERS.

Fabun, Don. 1970. "Ecology: The Man-Made Planet," Kaiser News, 1(1): 5.

Fischer, Kenneth P. 1973. "How Stephen Mather Sold the Park Service Idea," in Schoenfeld, Interpreting Environmental Issues, 81-84. Madison, Wisconsin: DERS.

Fowler, Ronald L., and Richard L. Bury. 1973. "Visitor Evaluation of a Developed Outdoor Recreation Area on a National Wildlife Refuge," in Hendee and Schoenfeld, Human Dimensions in Wildlife Programs, 129-135. Washington, D.C.: Wildlife Management Institute.

Gallagher, James Joseph. 1975. Environmental Education Leadership Development. Park Forest South, Illinois: Governors State University.

Graham, Frank Jr. 1971. Man's Dominion. New York: Evans.

Hauseman, William. 1976. "Special Honor Awards Issue," The Environment Monthly, April, 1976, p. 1.

Hendee, John. 1976. Recreation Research, U.S. Forest Service. Personal correspondence in author's files, 15 June.

Hine, Ruth, and Clay Schoenfeld. 1969. Editors, Canada Goose Management. Madison, Wisconsin: DERS.

Holtz, Robert. 1976. "Nature Centers, Environmental Attitudes, and Objectives," The Journal of Environmental Education, 7(3): 34-37.

Howell, Jerry F. Jr., and Jeanne S. Osborne. 1975. A Selected and Annotated Environmental Education Bibliography for Elementary, Secondary, and Post-Secondary Schools. Morehead, Kentucky: Morehead State University.

Jackson, William B. 1976. Director, Environmental Studies Center, Bowling Green University. Personal correspondence in author's files, 7 June.

Jordahl, Harold E. Jr. 1976. Professor of Urban and Regional Planning, University of Wisconsin-Madison. Personal correspondence in author's files, 18 May.

Klessig, Lowell. 1972. "Lessons in Communications for Eco-Activists," The Journal of Environmental Education, 3(2): 10-12.

LaHart, David E., and C. Richard Tillis. 1974. "Using Wildlife to Teach Environmental Values," The Journal of Environmental Education, 6(1): 43-48.

Leopold, Aldo. 1933. Game Mangement. New York: Scribners.

Leopold, Aldo. 1947. "The Ecological Conscience," Bulletin of the Garden Club of America, 12(12): 46-53.

Levin, Felice Goodman. 1972. "Historic Conflicts in Conservation Communications." The Journal of Environmental Education, 2(3): 12-15.

Limvere, Karl. 1976. "They Said It Couldn't Be Done," Environmental Action, 8(2): 8-9.

Line, Les. 1976. "The Audubon View," Audubon, 78(3): 146.

McInnis, Noel, and Don Albrecht (editors). 1975. What Makes Education Environmental? Louisville, Kentucky: Environmental Educators, Inc./ Data Courier, Inc.

Mercure, Delbert V. Jr., and William M. Ross. 1970. "The Wilderness Act: A Product of Congressional Compromise." In Congress and the Environment, eds. Richard Cooley and Geoffry Wandesforde-Smith, 78-85. Seattle: University of Washington Press.

Metress, John, and Eileen Metress. 1976. "The Environmental Press," The Journal of Environmental Education, 7(3): 39-50.

Michner, James A. 1975. Centennial. Greenwich, Conneticut: Fawcett.

Miles, John C. 1976. "Humanism and Environmental Education," The Journal of Environmental Education, 7(3): 2-10.

Mott, Frank Luther. 1957. A History of American Magazines, 1885-1906. Cambridge, Massachusetts: Harvard University Press.

Nash, Roderick. 1969. "Conservation and the Colorado" in Watkins, The Grand Colorado, Palo Alto, California: American West.

National Associations for Environmental Edcuation (NAEE). 1975. Quoted in NAEE Bulletin for May.

National Shooting Sports Foundation, Inc. 1971. "The Hunter and Conservation." Riverside, Connecticut.

Perlinski, Jerome. 1975. "Positives and Negatives," in Schafer and Disinger, Environmental Education Perspectives and Prospectives, 10-13. Columbus, Ohio: ERIC.

Pratt, Arden L. 1974. Selected Environmental Education Programs in North American Higher Education. Miami, Florida: National Association for Environmental Education.

Reiger, John F. 1975. American Sportsmen and the Origins of Conservation. New York: Winchester Press.

Rienow, Robert. 1976. Professor of Political Science, SUNY at Albany. Personal correspondence in author's files, 8 June.

Robinson, Glen O. 1975. The Forest Service. Baltimore: Johns Hopkins.

Rocchio, Richard, and Eve Lee. 1974. On Being a Master Planner. Columbus, Ohio: ERIC/SMEAC.

Roth, Robert E. 1970. "Fundamental Concepts for Environmental Management Education (K-16)," The Journal of Environmental Education, 1(3): 65-74.

Roth, Robert. 1976. Professor of Environmental Education, The Ohio State University. Personal correspondence in author's files, 23 June.

Schoenfeld, Clay. 1971. Everybody's Ecology. New York: Barnes.

Schoenfeld, Clay, and Sheryl Stateler Smith. 1975. "Triennial Analysis of

Recreational Patterns in Selected National Forest Campgrounds, Northern Wisconsin, Summers 1968-71-74." Report to Upper Great Lakes Regional Commission.

Shepard, Paul, and Daniel McKinley. 1967. Editors, The Subversive Science. Boston: Houghton Mifflin.

Shomon, Joseph J. 1975. A Nature Center for Your Community (and other titles). New York: National Audubon Society.

Smith, Sheryl Stateler. 1971. "Evaluating Some Visitor Information Services in the National Forests," Journal of Forestry, May.

Smith, Stephen. 1976. Dean of Natural Resources, UW-Madison. Personal correspondence in author's files, 7 June.

Stamm, Keith R., Brenda Dervin, and Robert Laing. 1975. "Applying Communication Research to Environmental Policy Decisions: Seattle's Solid Waste Planning." Paper presented to Association for Education in Journalism Theory and Methodology Division, Ottowa, Canada.

Stapp, William B., and Dorothy A. Cox. 1975. Environmental Education Activities Manuals. Farmington Hills, Michigan: Stapp and Cox.

Strohm, John. 1974. Editorial. National Wildlife, February-March: 3.

Strong, Douglas. 1971. The Conservationists. Menlo Park, California: Addison-Wesley.

Swan, Malcolm. 1975. "Forerunners of Environmental Education," in McInnis and Albrecht, What Makes Education Environmental?, 3-10. Louiseville, Kentucky: Environmental Edcuation, Inc./ Data Courier, Inc.

Talbot, Lee M. 1976. "New Principles for Management of Wild Living Resources." Wildlands, 3(1): 28-32.

Trefethen, James B. 1975. An American Crusade for Wildlife. New York: Boone and Crockett Club.

Trent, John H. 1976. "Changes and Trends in Environmental Education (1970-1975)," The Journal of Environmental Education, 7(3): 51-59.

Trosper, Thurman. 1975. "The Wilderness Society and Wilderness," Opportunities for Wilderness Preservation. Racine, Wisconsin: The Johnson Foundation.

Weaver, Howard E. 1976. "Origins of Interpretation," in Sharpe, ed., Interpreting the Environment, 17-27. New York: Wiley.

Wert, Jonathan. 1976. "A Model Environmental Education Program." Paper presented to Teachers Association of Puerto Rico, May 26-27. Mimeo, 12 pp.

Woodcock, Leonard. 1976. "Working for Environmental and Economic Justice," Conservation News, 41(12): 13.

Williams, Thomas F. 1971. Assistant Director of Public Affairs, Environmental Protection Agency, quoted in Rubin, David M., and David P. Sachs, The Environmental Information Explosion, 26. Stanford, California: Department of Genetics, Stanford University School of Medicine.

Witt, William E. 1976. Professor of Communications, University of Wisconsin-Stevens Point. Personal correspondence in author's files, 18 May.

Zinn, Donald J. 1970. At War with Waste. Washington, D.C.: National Wildlife Federation.